

Claims

1. (Currently Amended) Production line for the production of cast parts (M) from a metallic melt, in particular a light molten metal, which takes place in a continuous cycle, comprising a plurality of functional units, including a core production unit (2) for the production of casting cores, a mould assembly unit (3) for assembling casting moulds (G) formed as core packages, a casting unit for filling the molten metal into the casting moulds (G), a cooling unit (5a) for cooling the molten metal respectively contained in the casting moulds (G), and a demoulding unit (5b) for destructive removal of the casting mould (G) from the cast part (M),

wherein

~~characterised in that~~ the functional units (2 to 5b) successively passed through in each case are directly connected to each other by a respective conveying device (12, 19), and in that the clock with which the production line (1) ejects finished cast parts (M) is determined by the clock with which the core production unit (2) supplies the casting cores produced by it.

2. (Currently Amended) Production line according to Claim 1,

wherein

~~characterised in that~~ the core production unit (2) comprises a transfer station for transferring the finished cores to the mould assembly device (3) and a conveying device (7) which conveys the core shooting tools in a cycle from the transfer station to a core shooting station and then back to the transfer station.

3. (Currently Amended) Production line according to Claim 2,

wherein

~~characterised in that~~ the conveying device (7) is constructed as a conveyor section, and in that there is more than one hardening station arranged along the conveyor section.

4. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the core production unit (2) comprises a device for automated changing of the product-specific core tools required for shooting the cores, and in that the clock with which the change takes place is coupled to the clock with which the core production unit (2) supplies the casting cores produced by it.

5. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the mould assembly unit (3) comprises a take-over station with which it takes over the finished cores output by the core production device, and a conveying device (12) which successively conveys the casting mould (G) to be finished to the assembly stations ~~(9 to 11)~~.

6. (Currently Amended) Production line according to Claim 5,

wherein

~~characterised in that~~ the mould assembly unit (3) comprises more than one assembly station, and in that the conveying device (12) successively conveys the respective casting mould (G) to be finished to the assembly stations.

7. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ it comprises a heating device for heating components to be cast into the cast part (M).

8. (Currently Amended) Production line according to Claim 7,

wherein

~~characterised in that~~ the heating device is integrated into the casting unit (4) and the conveyed casting mould (G) passes through the heating device in clock with the mould elements inserted in the mould and to be cast in.

9. (Currently Amended) Production line according to ~~either~~ Claim 7 ~~or Claim 8~~,

wherein

~~characterised in that~~ the heating device operates inductively.

10. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the casting unit (4) comprises a rotary table (16) which takes over the respective casting mould (G) conveyed from the mould assembly unit (3) to the casting unit (4) at a transfer station of the conveying device connecting the mould assembly unit (3) to the casting unit, conveys the casting mould (G) in a pivoting movement to a casting station (18), and after filling of the casting mould with melt in a controlled manner in the casting station, rotates it into the solidifying position and conveys it onward to a transfer station at which it transfers the respective casting mould (G) to the conveying device (19) leading to the cooling unit (5).

11. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the cooling unit has a quenching station for quenching the cast part (M) from the casting heat.

12. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the demoulding unit (5b) comprises a liquid jet device for destroying the casting mould (G).

13. (Currently Amended) Production line according to Claim 12,

wherein

~~characterised in that~~ the liquid jet device is intended for washing the casting cores out of the cast part.

14. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the demoulding unit (5b) comprises a basin that can be filled with liquid and into which the casting mould can be inserted.

15. (Currently Amended) Production line according to Claim 14,

wherein

~~characterised in that~~ a movement device for moving the casting mould (G) immersed in the basin is associated with the liquid basin.

16. (Currently Amended) Production line according to Claim 1 ~~any one of the preceding~~ claims,

wherein

~~characterised in that~~ the cooling unit (5e) and the demoulding unit (5b) are united to form a combined quenching and demoulding unit.

17. (Currently Amended) Method for automatically producing cast mould parts ~~(M)~~ from a molten metal, in particular a light molten metal, wherein the following working steps are passed though in a continuous production sequence:

- producing casting cores in a core production unit ~~(2)~~ from a moulding material mixed from moulding basic material and a binder,
- transferring the casting cores to a mould assembly unit ~~(3)~~
- assembling the casting cores to form a casting mould ~~(G)~~ formed as a core package
- transferring the casting mould ~~(G)~~ to a casting unit ~~(4)~~
- controlled mould filling (pouring) of molten metal into the casting mould ~~(G)~~
- transferring the casting moulds ~~(G)~~ filled with molten metal to a cooling unit ~~(5a)~~
- cooling the molten metal contained in the casting mould ~~(G)~~,
- transferring the casting mould ~~(G)~~ with the cooled cast part ~~(M)~~ to a demoulding unit ~~(5b)~~,
- demoulding the cast part ~~(M)~~ with destruction of the casting mould ~~(G)~~ in the demoulding unit ~~(5b)~~
- quenching the cast part from the casting heat
- outputting the finished cast part ~~(M)~~
- wherein the clock with which the finished cast parts ~~(M)~~ are output is determined by the clock with which the casting cores are produced.

18. (Currently Amended) Method according to Claim 17,

wherein

~~characterised in that~~ the binder of the moulding material is an inorganic binder.

19. (Currently Amended) Method according to ~~either~~ Claim 17 ~~or Claim 18~~,

wherein

~~characterised in that~~ the respective transfer comprises conveying from one unit ~~(2 to 5a)~~ to the next unit ~~(3 to 5b)~~.

20. (Currently Amended) Method according to Claim 17 ~~any one of Claims 17 to 19,~~
wherein

~~characterised in that~~, in the course of cooling, the casting mould (G) is immersed in a basin filled with coolant.

21. (Currently Amended) Method according to Claim 20,

wherein

~~characterised in that~~ a strong relative movement is generated between casting mould (G) and coolant.

22. (Currently Amended) Method according to Claim 17 ~~any one of Claims 17 to 21,~~
wherein

~~characterised in that~~ the casting (M) is demoulded by means of a liquid by which binding of the moulding material is cancelled.

23. (Currently Amended) Method according to Claim 22,

wherein

~~characterised in that~~ the moulding material detached by the liquid is collected and supplied to a processing stage.